UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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4WD-RCRA

SUBJ: Evaluation of First Chemical Corporation's (Pascagoula, Mississippi) status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA I.D. Number: MSD 033 417 031

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I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of the status of First Chemical Corporation, Pascagoula, Mississippi in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

1) Human Exposures Controlled Determination (CA725),
2) Groundwater Releases Controlled Determination (CA750).

Concurrence by the RCRA Programs Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above. See Memo Attachment 1 for more specific information of the RCRIS definitions for CA725 and CA750.

II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY AND REFERENCE DOCUMENTS

This particular evaluation is the first evaluation performed by EPA for First Chemical Corporation (FCC), Pascagoula, Mississippi. The evaluation, and associated interpretations and conclusions on contamination, exposures and contaminant migration at the facility, is based on information obtained from the following documents:

Effectiveness of Groundwater Corrective Action Program March 1998

Effectiveness of Groundwater Corrective Action Program	September 1996
Groundwater Modeling Study, Evaluation of Recovery System II	August 1994
Effectiveness of Groundwater Corrective Action Program	September 1994
Technical Specifications Groundwater Recovery System	February 1989
RCRA Permit	July 1989
Confirmatory Sampling Work plan	September 1989
EPA, Region 4 Correspondence File	Several
Interim RCRA Facility Assessment Report	May 1988
Remedial Investigation, Volume 1 of 5	June 1987
Pond No 3 Revised Closure Plan	July 1987
RCRA Part B Post-closure Application	December 1987

III. FACILITY SUMMARY

The FCC plant is located in a heavily industrialized Bayou Cosette Industrial Park in the southern portion of Pascagoula, Mississippi. The site is 1,500 feet east of the Bayou Cosette, and 2.4 miles north of the Mississippi Sound, which is part of the Gulf of Mexico. The 26 acre FCC site is bound by ditches on all sides. On the north, west and south, the site is bounded by Mississippi Chemical Corporation, a fertilizer manufacturing facility. On the east the site is bounded by Chevron Corporation oil refinery.

The FCC facility has been operating since 1967 producing aromatic chemicals. Initially the entire FCC operation consisted of one or two small nitration units. By late 1969, the facility was producing diphenylamine (DPA). DPA production ceased in 1971. Over the years FCC's production line has changed several times. Presently FCC produces aniline, nitrobenzene, o-nitrotoluene, p-nitrotoluene, m-toludine, and m-phenyline-diamene. A research and development laboratory at the facility focuses on product modification and new product development.

Wastewater at the facility is treated by the plant wastewater system. Prior to 1990, still bottoms and sludge and spent solvents (K083 and K104 listed hazardous waste) were collected for off-site incineration. In July, 1989 Mississippi Department of Natural Resources (MDNR, currently known as Mississippi Department of Environmental Quality, MDEQ) issued a permit to FCC to conduct closure, post-closure and corrective action at this facility. In February, 1990 MDNR issued a permit to FCC to construct and operate a hazardous waste incinerator, and to operate hazardous waste storage tanks. The incinerator processes K083 and K104 waste streams.

IV. CONCLUSION FOR CA725

As explained in Memo Attachment 2, there is not enough relevant information available to make a determination as to whether human exposures are controlled. Groundwater, soil, and surface water assessment of current contamination is not complete, therefore, it is not possible to determine if human exposures are controlled. It is recommended that **CA725 IN be entered into RCRIS**.

V. CONCLUSION FOR CA750

Based on data contained in the documents referenced in Section II and summarized in the groundwater portion of Memo Attachment 2, releases from SWMUs and/or AOCs have contaminated groundwater at concentrations above relevant action levels. The existing groundwater recovery system controls groundwater to some extent. However, recent Effectiveness of Groundwater Corrective Action Reports indicate contamination in the monitoring wells that are at the most downgradient locations. This data suggest that portions of the groundwater plumes could be escaping the recovery system, and that further assessment and possibly increasing the recovery capacity may be necessary. Specifically, monitoring well MW-57S was reported to have elevated levels of nitrobenzene and aniline. No monitoring wells exist downgradient of this well.

Furthermore, since DNAPLs were detected in some wells, there is a potential that contaminant migration does not necessarily follow the direction of groundwater flow. Current data suggests that the groundwater contamination extends outside the area of the existing monitoring wells.

Because all groundwater contamination at or emanating from the facility is not controlled, it is recommended that CA750 NO be entered.

VI. SUMMARY OF FOLLOW-UP ACTIONS

The RCRA permit for FCC expires in July 1999. Further assessment and additional corrective action, as needed, must be addressed and implemented under the post-closure portion of the RCRA permit for contamination associated with the regulated unit; and under the Corrective Measures Study of the HSWA portion of the RCRA permit for contamination associated with the other SWMUs. Corrective action should cover contaminated groundwater, surface water, and soil, as necessary. Additionally, a multi-pathway risk assessment must be submitted upon renewal of the incinerator operating permit which expires in February 2000.

MEMO ATTACHMENT 1

A. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

1) YE — Yes, applicable as of this date [i.e., human exposures are controlled as of this date].
2) NA — Previous determination no longer applicable as of this date.
3) NC — No control measures necessary.
4) NO — Facility does not meet definition [i.e., human exposures are not controlled as of this date].
5) IN — More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

B. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

There are five (5) status codes listed under CA750:

1) YE — Yes, applicable as of this date [i.e., groundwater releases are controlled as of this date].
2) NA — Previous determination no longer applicable as of this date.
3) NR — No releases to groundwater.

4) NO Facility does not meet definition [i.e., groundwater releases are not controlled as of this date].

5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. **Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.**

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

MEMO ATTACHMENT 2

MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

Groundwater:

The wastewater treatment system formerly included Pond 3 which was a RCRA regulated unit. Site investigation revealed extensive groundwater contamination at several locations. A RCRA Facility Assessment (RFA) was conducted, and a report completed in May 1988. A RCRA permit was issued in July, 1989.

Three groundwater plumes are known to exist at the FCC facility. The main constituents are aniline, nitrobenzene, benzene, toluene, and phenols. A pump and treat system is currently in operation at the facility to contain groundwater contamination. Data in recent Corrective Action Effectiveness Reports indicate that some hydraulic control is maintained in the plume areas. However, data also indicate that groundwater contamination is not fully controlled. This may be a result of the nature of the behavior of dense non-aqueous phase liquids (DNAPLs) in an aquifer.

Groundwater contamination has been confirmed. The existing groundwater recovery system does not fully control the plumes. **Hence, groundwater contamination is not controlled.** The **current** extent of the contamination has not been fully defined. Therefore, a decision on human exposures to contamination cannot be made.

Because of the uncertainty regarding the extent of groundwater contamination at questionable areas of the facility, an opinion on plausible human exposures to groundwater contamination is not possible at this time.

Soil:

A decision on human exposures to soil contamination cannot be made because there is insufficient information on plausible human exposures.

There are areas of the facility where information on plausible human exposures is insufficient or lacking. Soil contamination (aniline, benzene and other organics) was found at several locations. The extent of soil contamination has not been fully defined. Sludges and soils were removed in the closure process at Pond 3 (the RCRA regulated unit). However, no soil removal has been completed to date in areas near other SWMUs, where contamination was found.

Because of the uncertainty regarding whether plausible human exposures to soil contamination exist at the facility, an opinion on plausible human exposures to soil contamination is not possible at this time.

Surface Water:

A decision on human exposures to contamination cannot be made because there is insufficient information on surface water quality at the entire facility.

Surface water samples were analyzed as part of the remedial investigation process, however, since then high concentrations of contaminants were detected in monitoring well MW-41, including free phase DNAPLs. MW-41 is very close to the perimeter drainage ditches. Potential contamination in these ditches needs to be further assessed given the proximity of SWMUs, the facility operations, and the pattern of reported groundwater contamination.

Because of the uncertainty regarding the contamination of surface water at the facility, an opinion on plausible human exposures to surface water contamination is not possible at this time

Air:

The facility has a permitted hazardous waste incinerator. Trial burn reports and the source emission survey indicate compliance with the incinerator permit, hence no risk from direct inhalation is known to exist from the operation of the incinerator. However, a multi-pathway site specific risk assessment has not been conducted. In the permit renewal process, FCC must submit a multi-pathway risk assessment to define protective emission limits. **Therefore, an opinion on plausible human exposures to air contamination is not possible at this time.**